

CLAIMS

What is claimed is:

1. A method for managing bandwidth within a distributed data processing system, the method comprising:

establishing a bandwidth history comprising bandwidth usage data associated with multiple entities within the data processing system, wherein an entity within the data processing system is selected from a group comprising a user, an application, and/or an endpoint; and

in response to a requested action within the data processing system, predicting bandwidth usage by the requested action.

2. The method of claim 1 further comprising:

receiving the requested action, wherein the requested action is a target resource within the distributed data processing system, and wherein completion of the requested action depends upon operations of a set of resources along a logical route through the distributed data processing system.

3. The method of claim 2 wherein the requested action is received from a requesting user or a requesting application.

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4. The method of claim 3 further comprising:
snooping network packets from multiple sources within the distributed data processing system;
filtering the network packets against multiple filter parameters, wherein a filter parameter comprises a user identifier, an application identifier, and/or an endpoint identifier; and
reporting packet snoop data to be associated with the requesting entity.
5. The method of claim 4 further comprising:
computing bandwidth usage data from the packet snoop data.
6. The method of claim 5 further comprising:
storing bandwidth usage data as the bandwidth history.
7. The method of claim 3 further comprising:
deriving a set of logical routes from a network topology mapping, wherein each logical route is a series of endpoints that comprise an endpoint-to-endpoint route for completing the requested action.
8. The method of claim 1 further comprising:
displaying the bandwidth usage data to the system administrator in real time.
9. The method of claim 1 wherein the bandwidth usage data is measured as bits-per-user, packets-per-user, bits-per-application, and/or packets per application.

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10. The method of claim 1 further comprising:
displaying the predicted bandwidth usage for the
requested action to the system administrator.
11. The method of claim 1 further comprising:
querying the bandwidth history by the application
that generated the requested action.
12. The method of claim 11 further comprising:
comparing actual bandwidth usage with predicted
bandwidth usage;
determining whether to adapt the requested action in
response to comparing actual bandwidth usage with
predicted bandwidth usage; and
modifying the requested action to reduce bandwidth
consumption during completion of the requested action.
13. The method of claim 12 further comprising:
changing the requested action in comparison to
actual bandwidth usage with respect to the application
that generated the requested action.
14. The method of claim 12 further comprising:
changing the requested action in comparison to
actual bandwidth usage with respect to a user of the
application that generated the requested action.

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15. The method of claim 12 further comprising:

changing the requested action in comparison to actual bandwidth usage with respect to an endpoint supporting the application that generated the requested action.

16. The method of claim 12 further comprising:

changing the requested action in comparison to actual bandwidth usage with respect to multiple instances of the application that generated the requested action.

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17. An apparatus for managing bandwidth within a distributed data processing system, the apparatus comprising:

means for establishing a bandwidth history comprising bandwidth usage data associated with multiple entities within the data processing system, wherein an entity within the data processing system is selected from a group comprising a user, an application, and/or an endpoint; and

means for predicting bandwidth usage by the requested action in response to a requested action within the data processing system.

18. The apparatus of claim 17 further comprising:

means for receiving the requested action, wherein the requested action is a target resource within the distributed data processing system, and wherein completion of the requested action depends upon operations of a set of resources along a logical route through the distributed data processing system.

19. The apparatus of claim 18 wherein the requested action is received from a requesting user or a requesting application.

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20. The apparatus of claim 19 further comprising:
means for snooping network packets from multiple sources within the distributed data processing system;
means for filtering the network packets against multiple filter parameters, wherein a filter parameter comprises a user identifier, an application identifier, and/or an endpoint identifier; and
means for reporting packet snoop data to be associated with the requesting entity.
21. The apparatus of claim 20 further comprising:
means for computing bandwidth usage data from the packet snoop data.
22. The apparatus of claim 21 further comprising:
means for storing bandwidth usage data as the bandwidth history.
23. The apparatus of claim 19 further comprising:
means for deriving a set of logical routes from a network topology mapping, wherein each logical route is a series of endpoints that comprise an endpoint-to-endpoint route for completing the requested action.
24. The apparatus of claim 17 further comprising:
means for displaying the bandwidth usage data to the system administrator in real time.

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25. The apparatus of claim 17 wherein the bandwidth usage data is measured as bits-per-user, packets-per-user, bits-per-application, and/or packets per application.

26. The apparatus of claim 17 further comprising:
means for displaying the predicted bandwidth usage for the requested action to the system administrator.

27. The apparatus of claim 17 further comprising:
means for querying the bandwidth history by the application that generated the requested action.

28. The apparatus of claim 27 further comprising:
means for comparing actual bandwidth usage with predicted bandwidth usage;
means for determining whether to adapt the requested action in response to comparing actual bandwidth usage with predicted bandwidth usage; and
means for modifying the requested action to reduce bandwidth consumption during completion of the requested action.

29. The apparatus of claim 28 further comprising:
means for changing the requested action in comparison to actual bandwidth usage with respect to the application that generated the requested action.

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30. The apparatus of claim 28 further comprising:
means for changing the requested action in
comparison to actual bandwidth usage with respect to a
user of the application that generated the requested
action.

31. The apparatus of claim 28 further comprising:
means for changing the requested action in
comparison to actual bandwidth usage with respect to an
endpoint supporting the application that generated the
requested action.

32. The apparatus of claim 28 further comprising:
means for changing the requested action in
comparison to actual bandwidth usage with respect to
multiple instances of the application that generated the
requested action.

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33. A computer program product in a computer-readable medium for use in a distributed data processing system for managing bandwidth, the computer program product comprising:

instructions for establishing a bandwidth history comprising bandwidth usage data associated with multiple entities within the data processing system, wherein an entity within the data processing system is selected from a group comprising a user, an application, and/or an endpoint; and

instructions for predicting bandwidth usage by the requested action in response to a requested action within the data processing system.

34. The computer program product of claim 33 further comprising:

instructions for receiving the requested action, wherein the requested action is a target resource within the distributed data processing system, and wherein completion of the requested action depends upon operations of a set of resources along a logical route through the distributed data processing system.

35. The computer program product of claim 34 wherein the requested action is received from a requesting user or a requesting application.

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36. The computer program product of claim 35 further comprising:

instructions for snooping network packets from multiple sources within the distributed data processing system;

instructions for filtering the network packets against multiple filter parameters, wherein a filter parameter comprises a user identifier, an application identifier, and/or an endpoint identifier; and

instructions for reporting packet snoop data to be associated with the requesting entity.

37. The computer program product of claim 36 further comprising:

instructions for computing bandwidth usage data from the packet snoop data.

38. The computer program product of claim 37 further comprising:

instructions for storing bandwidth usage data as the bandwidth history.

39. The computer program product of claim 35 further comprising:

instructions for deriving a set of logical routes from a network topology mapping, wherein each logical route is a series of endpoints that comprise an endpoint-to-endpoint route for completing the requested action.

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40. The computer program product of claim 33 further comprising:

instructions for displaying the bandwidth usage data to the system administrator in real time.

41. The computer program product of claim 33 wherein the bandwidth usage data is measured as bits-per-user, packets-per-user, bits-per-application, and/or packets per application.

42. The computer program product of claim 33 further comprising:

instructions for displaying the predicted bandwidth usage for the requested action to the system administrator.

43. The computer program product of claim 33 further comprising:

instructions for querying the bandwidth history by the application that generated the requested action.

44. The computer program product of claim 43 further comprising:

instructions for comparing actual bandwidth usage with predicted bandwidth usage;

instructions for determining whether to adapt the requested action in response to comparing actual bandwidth usage with predicted bandwidth usage; and

instructions for modifying the requested action to reduce bandwidth consumption during completion of the requested action.

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45. The computer program product of claim 44 further comprising:

instructions for changing the requested action in comparison to actual bandwidth usage with respect to the application that generated the requested action.

46. The computer program product of claim 44 further comprising:

instructions for changing the requested action in comparison to actual bandwidth usage with respect to a user of the application that generated the requested action.

47. The computer program product of claim 44 further comprising:

instructions for changing the requested action in comparison to actual bandwidth usage with respect to an endpoint supporting the application that generated the requested action.

48. The computer program product of claim 44 further comprising:

instructions for changing the requested action in comparison to actual bandwidth usage with respect to multiple instances of the application that generated the requested action.

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